WE CLAIM

A method of making a preform for an enhanced photosensitive fiber comprising the steps of:

depositing successive layers of optical material the inside a tube using modified chemical vapor deposition; and

collapsing the successive layers of optical material in a reducing atmosphere with a positive pressure.

- 2. A method according to claim 1, wherein the positive pressure is 0 to 1.0 torr.
- 3. A method according to claim 2, wherein the positive pressure is 0 to 0.5 torr.
- 4. A method according to claim 3, wherein the positive pressure is 0.2 to 0.4 torr.
- 5. A method according to claim 1, wherein the reducing atmosphere comprises GeCl₄.
- 6. A method according to claim 5, wherein the reducing atmosphere further comprises at least one of He, Ar, CO, COH and 2-propanol.
- 7. A method according to claim 1, wherein the optical material is doped with Ge.
- 8. A method according to claim 7, wherein the optical material is co-doped with boron.

A method of making an enhanced photosensitive fiber comprising the steps of:

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0 to 1.0 torr.

making a preform using modified chemical vapor deposition wherein the preform is collapsed in a reducing atmosphere with a positive pressure; and drawing the preform into a fiber.

- 10. A method according to claim 9, wherein the positive pressure is
- 11. A method according to claim 10, wherein the positive pressure is 0 to 0.5 torr.
- 12. A method according to claim 11, wherein the positive pressure is 0.2 to 0.4 torr.
- 13. A method according to claim 9, wherein the step of drawing is conducted with a tension of 100 g to 250 g.
- 14. A method according to claim 13, wherein the step of drawing is conducted with a tension of 150 g to 200 g.
- 15. A method according to claim 14, wherein the step of drawing is conducted at a temperature of 1950 C to 2100 C.
- 16. A method according to claim 15, wherein the step of drawing is conducted at a temperature of 1980 C to 2050 C.
 - 17. A method of making a fiber grating comprising the steps of: providing an enhanced photosensitive fiber made according to claim 9;
- and

exposing the enhanced photosensitive fiber to ultraviolet light to form a grating pattern.

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- 18. The method of claim 17, wherein the step of exposing is completed within 15 minutes.
- 19. The method of claim 18, wherein the step of exposing is completed within 5 minutes.
- 20. The method of claim 19, wherein the step of exposing is completed within 1 minute.
 - 21. The method of claim 20, wherein the step of exposing is completed within half a minute.
 - 22. The method of claim 17, wherein the grating pattern forms a fiber Bragg grating.
 - 23. The method of claim 17, wherein the grating pattern forms a long period fiber grating.

The method of claim 17, wherein the grating pattern forms a laser stabilization grating.